

WHAT IS CLAIMED IS:

1                   1.     A method of call queuing notification implemented in a  
2 telecommunications advanced intelligent network, the method comprising:  
3                   receiving a call to access a subscriber line;  
4                   determining that the subscriber line is busy;  
5                   placing the subscriber line access call in a queue associated with the  
6 subscriber line, the queue implemented within the telecommunications network; and  
7                   placing a separate call indicating status of the queued subscriber line  
8 access call.

1                   2.     A method of call queuing notification as in claim 1 further  
2 comprising determining that the subscriber has requested call notification before  
3 placing the separate call indicating queued subscriber line access call status.

1                   3.     A method of call queuing notification as in claim 1 wherein  
2 placing the separate call indicating queued subscriber line access call status is based  
3 on information about the received call.

1                   4.     A method of call queuing notification as in claim 1 wherein  
2 the queue is maintained in an intelligent peripheral.

1                   5.     A method of call queuing notification as in claim 4 wherein  
2 the intelligent peripheral is operative to call the subscriber and provide caller  
3 identification information.

1                   6.     A method of call queuing notification as in claim 1 wherein  
2 the separate call indicating queued subscriber line access call status is placed through  
3 a paging system.

1                   7.     A method of call queuing notification as in claim 1 further  
2 comprising receiving at least one command from the subscriber in response to  
3 placing the separate call indicating queued subscriber line access call status.

1                   8.     A method of call queuing notification as in claim 7 wherein  
2     the command connects the queued call to the subscriber over a line used to place the  
3     separate call.

1                   9.     A method of call queuing notification as in claim 7 wherein  
2     the command moves the queued call to the front of the queue.

1                   10.    A method of call queuing notification as in claim 1 wherein  
2     the separate call is placed substantially when the call to the subscriber is queued.

1                   11.    A method of call queuing notification as in claim 1 wherein  
2     the separate call is placed based on a length of time that the call to the subscriber is  
3     queued.

1                   12.    A method of call queuing notification as in claim 1 wherein  
2     the separate call is placed based on a number of calls queued.

1                   13.    A system for call queue notification implemented in an  
2     Advanced Intelligent Network (AIN) having at least one central office switch and  
3     a service control point in electrical communication with a plurality of subscriber  
4     switches via a signaling network, the system comprising an intelligent peripheral in  
5     electrical communication with the central office switch and the service control point,  
6     the intelligent peripheral equipped with queuing functionality for each subscriber,  
7     the intelligent peripheral operative to place a first call to the central office switch for  
8     receipt by a subscriber having a call placed in queue, the call placed in response to  
9     a determination that a line associated with the subscriber is idle, the intelligent  
10    peripheral further operative to place a second call providing status information to  
11    the subscriber about at least one queued call.

1                   14.    A system for call queue notification as in claim 13 wherein the  
2     intelligent peripheral is further operative to determine that the subscriber has

3 requested call notification before placing the separate call indicating queued  
4 subscriber line access call status.

1 15. A system for call queue notification as in claim 13 wherein the  
2 intelligent peripheral places the second call based on information about at least one  
3 queued call.

1 16. A system for call queue notification as in claim 13 wherein the  
2 status information comprises caller identification information.

1 17. A system for call queue notification as in claim 13 wherein  
2 the second call is placed through a paging system.

1 18. A system for call queue notification as in claim 13 wherein the  
2 intelligent peripheral is further operative to receive at least one command from the  
3 subscriber in response to placing the second call.

1 19. A system for call queue notification as in claim 18 wherein the  
2 command connects a queued call to the subscriber over a line used to place the  
3 second call.

1 20. A system for call queue notification as in claim 18 wherein the  
2 command moves a queued call to the front of the queue.

1 21. A system for call queue notification as in claim 13 wherein the  
2 second call is placed substantially when the call to the subscriber is queued.

1 22. A system for call queue notification as in claim 13 wherein the  
2 second call is placed based on a length of time that a call to the subscriber is queued.

1 23. A system for call queue notification as in claim 13 wherein the  
2 second call is placed based on a number of calls queued.

1                   24.     A method for notifying a subscriber of queued call status, the  
2     call placed from a caller to a subscriber line, the call processed by an Advanced  
3     Intelligent Network (AIN) having at least one central office switch and a service  
4     control point (SCP) in electrical communication with a plurality of subscriber  
5     switches via a signaling network, the method comprising:  
6                   providing an intelligent peripheral in electrical communication with  
7     the at least one central office switch and the SCP, the intelligent peripheral equipped  
8     with queuing functionality;  
9                   receiving a first call to access a subscriber line;  
10                  determining that the subscriber line is busy;  
11                  queuing the first call in the intelligent peripheral; and  
12                  placing a second call from the intelligent peripheral indicating status  
13     of the queued first call.

1                   25.     A method for notifying a subscriber of queued call status as  
2     in claim 24, the method further comprising:  
3                   monitoring the subscriber line to notify the SCP when the line is idle;  
4                   placing a third call from the intelligent peripheral to the subscriber  
5     in response to a determination that the subscriber line is idle;  
6                   forwarding answer supervision to the intelligent peripheral in  
7     response to the third call being answered by the subscriber; and  
8                   transferring and connecting the subscriber and the caller at the central  
9     office switch.

1                   26.     A method for notifying a subscriber of queued call status as  
2     in claim 24, the method further comprising:  
3                   monitoring call signaling to detect a termination attempt trigger;  
4                   launching a query at the SCP for receipt by the intelligent peripheral  
5     requesting the queue status of the subscriber line in response to the detected  
6     termination attempt trigger;  
7                   forwarding the first call to the intelligent peripheral to be added to the  
8     queue in response to a determination that the queue is active;

9                   delivering the first call to the subscriber and setting a next event list  
10 trigger to determine the status of a subscriber line in response to a determination that  
11 the queue is empty;  
12                   connecting the first call to the subscriber line in response to a  
13 determination that the line is idle; and  
14                   forwarding the first call to the intelligent peripheral to be placed in  
15 queue in response to a determination that the subscriber line is busy.

1                   27.    A method for notifying a subscriber of queued call status as  
2 in claim 24 wherein placing the second call is based on information about the first  
3 call.

1                   28.    A method for notifying a subscriber of queued call status as  
2 in claim 24 wherein the second call from the intelligent peripheral indicating status  
3 of the queued first call is placed to a paging system.

1                   29.    A method for notifying a subscriber of queued call status as  
2 in claim 24 further comprising receiving at least one command from the subscriber  
3 in response to placing the second call.

1                   30.    A method for notifying a subscriber of queued call status as  
2 in claim 29 wherein the command connects the queued first call to the subscriber  
3 over a line used to place the second call.

1                   31.    A method for notifying a subscriber of queued call status as  
2 in claim 29 wherein the command moves the queued first call to the front of the  
3 queue.

1                   32.    A method for notifying a subscriber of queued call status as  
2 in claim 24 wherein the second call is placed substantially when the first call is  
3 queued.

1                   33.    A method for notifying a subscriber of queued call status as  
2   in claim 24 wherein the second call is placed based on a length of time that the first  
3   call is queued.

1                   34.    A method for notifying a subscriber of queued call status as  
2   in claim 24 wherein the second call is placed based on a number of calls in the  
3   queue holding the first call.

1                   35.    For use in an Advanced Intelligent Network (AIN) equipped  
2   with termination attempt trigger (TAT) capability, the AIN having at least one  
3   central office switch and a service control point (SCP) in electrical communication  
4   with a plurality of subscriber switches via a signaling network, a method of  
5   notification about queuing of a telephone call from a caller to a subscriber telephone  
6   line comprising:

7                   providing an intelligent peripheral in electrical communication with  
8   the central office switch and the SCP, the intelligent peripheral equipped with  
9   queuing functionality for each of the subscribers;

10                  monitoring signaling to detect a TAT trigger;

11                  generating a first electrical signal for receipt by the SCP in response  
12   to the detected TAT trigger;

13                  generating a second electrical signal at the SCP for receipt by the  
14   intelligent peripheral requesting status of a queue associated with the subscriber line;

15                  generating a third electrical signal at the SCP for receipt by the  
16   subscriber switch instructing the subscriber switch to forward the call to the  
17   intelligent peripheral to be added to the queue in response to a determination that the  
18   queue is active; and

19                  placing a call from the intelligent peripheral indicating status of the  
20   queued call.

1                   36.    The method of claim 35 wherein the AIN is further equipped  
2   with Next Event List (NEL) functionality, the method further comprising:

3                   generating a fourth electrical signal at the SCP for receipt by the  
4   subscriber switch instructing the subscriber switch to deliver the call to the

5 subscriber and to set a NEL to determine the status of the subscriber line in response  
6 to a determination that the queue is empty; and  
7 connecting the call to the subscriber line in response to a  
8 determination that the subscriber line is idle.

1 37. The method of claim 35 further comprising:  
2 generating a fifth electrical signal at the subscriber switch for receipt  
3 by the SCP in response to a determination that the subscriber line is busy;  
4 generating a sixth electrical signal at the SCP for receipt by the  
5 subscriber switch instructing the subscriber switch to forward the call to the  
6 intelligent peripheral to be placed in the queue;  
7 generating a seventh electrical signal at the SCP for receipt by the  
8 subscriber switch instructing the subscriber switch to set a monitor on the subscriber  
9 line and to notify the SCP when the line is idle;  
10 generating an eighth electrical signal at the subscriber switch for  
11 receipt by the SCP in response to a determination that the subscriber line is idle;  
12 generating a ninth electrical signal at the SCP for receipt by the  
13 intelligent peripheral instructing the intelligent peripheral to call the subscriber via  
14 the central office switch;  
15 generating a tenth electrical signal at the central office switch for  
16 receipt by the intelligent peripheral to forward answer supervision to the intelligent  
17 peripheral in response to the call being answered by the subscriber; and  
18 generating an eleventh electrical signal at the intelligent peripheral for  
19 receipt by the central office switch to transfer and connect the subscriber and the  
20 caller at the central office switch.